NAVY RESPONSES TO AGENCY COMMENTS ON THE DRAFT ALTERNATIVE SELECTION REPORT INTERIM-ACTION GROUP 5 SITES NAVAL STATION TREASURE ISLAND HUNTERS POINT ANNEX SAN FRANCISCO, CALIFORNIA

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February 25, 1994

The following are the Navy's responses to the comments made by the United States Environmental Protection Agency (EPA), Region IX, the California EPA Department of Toxic Substances Control (DTSC), and the Office of Scientific Affairs (OSA) - DTSC, on the *Draft Alternative Selection Report, Interim-Action Group 5, Naval Station Treasure Island, Hunters Point Annex, San Francisco, California*, dated August 26, 1993. The comments are reproduced here exactly as in the original documents.

I. EPA COMMENTS AND NAVY RESPONSES

A. EPA General Comments

Comment 1: **We have consistently requested the Navy use a 10^{-6} excess lifetime cancer risk as a point of departure for risk management decisions, as opposed to the 10^{-4} risk level used in the ASRs. We have been told and expect that the Parcel RI/FSs will use the more conservative 10^{-6} level. Had the ASRs been presented using a 10^{-6} point of departure, extensive reworking of the Parcel RI/FSs would not have been necessary and could have resulted in a significant cost savings to the Navy.**

Response: Numeric health risk results posed by all detected analytes in soil and groundwater were calculated, and were presented in Appendix A. Similar total health risk results will be developed and presented for all parcel RI/FSs. The Navy is aware that the acceptable excess cancer risk range for regulatory purposes is 10^{-4} to 10^{-6} and that EPA and Cal/EPA consider the 10^{-6} excess cancer risk as the point of departure at which risk management decisions may be considered at the site, depending upon site-specific conditions. The health based levels (HBLs) were derived based on an excess cancer risk of 1E-04 because background levels at HPA may pose a cancer risk in excess of 1E-05. As noted in EPA's General Comment No. 3, the HPA team is currently evaluating appropriate background levels for the site. The Navy will reevaluate HBLs once appropriate background levels have been selected.

Comment 2: **We have repeatedly requested that the Navy discontinue the practice of assessing risk for TPH as a mixture. Rather, risk should be assessed for the individual TPH components. This means that for the remedial investigation work currently planned, analysis of the individual components of TPH needs to be done.**

Response: In the ASRs, cumulative health risks were developed and presented for individual TPH components as well as for TPH as a mixture. The Navy will continue to present total health risks for individual TPH components in all future risk assessments, and will no longer present cumulative health risks for TPH as a mixture.

Comment 3: **The Hunters Point Annex team (Navy, State, EPA) is currently evaluating appropriate background levels for the site. In the Parcel RI/FSs these levels should replace those the Navy has been using for the ASRs.**

Response: Comment acknowledged.

Comment 4: **The work performed at the site so far has involved filtered groundwater samples. EPA supports either unfiltered samples or collecting both filtered and unfiltered. The rationale provided by the Navy's consultant for providing only filtered samples is not acceptable. All future field work for the remedial investigation should conform to EPA policy on this matter, or the risk assessments will be jeopardized.**

Response: The Navy collected and analyzed all samples at HPA following the EPA-approved work plan and quality assurance project plan that specified collection of filtered groundwater samples for metals analyses. The Navy proposes to collect a limited percentage (5 to 10 percent) of unfiltered groundwater samples during future quarterly monitoring and remedial investigations. The Navy and the agencies will need to resolve how such data will be used in risk assessments. It is not clear that transport of particulates (in unfiltered samples) represents a significant migration pathway. Risk assessments based on unfiltered groundwater data are likely to strongly overstate potential risks from groundwater.

Comment 5: **The Agency supports the use of the biokinetic model for determining risks associated with lead in soil; however, this model only addresses children. The California lead spread model is a modification of the biokinetic uptake model and also addresses adults; therefore it would be sufficient to use only California lead model to determine lead hazard levels. The Navy consistently uses the California TTLC value as a comparison point, which is not appropriate.**

Response: The Navy currently uses both the California lead spread model and the biokinetic uptake model to assess risk associated with lead in soil and will no longer use California Total Threshold Limit Concentration (TTLC) values.

Comment 6: **The most protective of the Federal or State toxicity values should be used. The Navy has only been using Federal values.**

Response: The Navy currently obtains carcinogenic slope factors and reference doses from both federal and state sources. The Navy compares these values and uses the most protective of the values.

Comment 7: **The ASRs have not provided sufficiently detailed information on Applicable or Relevant and Appropriate Requirements (ARARS). In the Parcel RI/FSs, the specific ARARS for each alternative must be identified, including how and whether the alternative meets these requirements.**

Response: The parcel FSs will include alternative-specific ARAR discussions in the *Detailed Analysis of Alternatives* in accordance with California Environmental Response, Compensation, and Liability Act (CERCLA) guidance. The ASRs were developed to address immediate concerns at HPA, and as such, do not include a detailed analysis of the nine CERCLA criteria typically presented in a feasibility study. It is the intent of the Navy to comply with all pertinent ARARs during implementation of any interim actions.

Regarding the ARAR presentation in this ASR, in addition to the ARARs identified in Section 5, the description under each alternative included a reference to potential activities that may trigger each ARAR. The Navy intends to comply with any ARARs triggered for the selected alternatives as described on page 43. It is not currently known whether every ARAR identified will be triggered at the time of implementation. For instance, on page 46, bullet 3, the text states "If sampling of excavated soil and debris [performed at the time of implementation] indicates hazardous waste may be disposed [onsite] . . . the substantive requirements of 40 CFR, Part 254, Subpart N may be considered relevant and appropriate (e.g., liner, leachate collection and removal system, monitoring and inspection during construction, response action plan for actions to be taken if action leakage rate is exceeded)." The Navy would meet each of these requirements if hazardous waste was identified and the Navy decided to implement installation of an on-site repository.

B. EPA Specific Comments

Comment 1: **There are a number of point sources with elevated levels of contaminants in soil and groundwater (including those with Hazard Indices greater that 1) that are not proposed for interim remedial action (IRA) for Group 5 sites. For the most part, IRA is only proposed for areas where free product was encountered (except surface soils at IR-11 and debris at IR-12).**

The ASR does not state that appearance of free product is the main criteria for taking an IRA or explain why this approach is taken. Other contaminants such as numerous metals and other organics (PCBs, VOCs, various SOCs including cPAHs and nPAHs) are left unremediated, to be addressed in the Parcel RI/FSs. Because of this approach, the Navy is deferring most everything to Parcel remediation.

Response: The following criteria were used to identify sites that need IRA: (1) contamination represents an imminent threat to human health, or (2) the need for final remedial action is likely and interim action will expedite final action. Contamination associated with nonpoint sources was not considered in the assessment of the need for IRA, as discussed in Section 2.2 of the report. Because of the extremely limited potential for exposure under existing conditions and with current land use at HPA, none of the sources pose an imminent threat to human health. Those point sources where final remedial action is likely and an IRA will significantly reduce risks were proposed for interim action. All point sources containing free product are expected to require remedial action and therefore were proposed for IRA. Many detections of metals appear to be associated with nonpoint sources and therefore are more appropriately addressed on a facility-wide basis.

Comment 2: **With respect to hydrocarbon remediation, EPA still does not concur with the attempted risk based approach for the TPH or TOG, including the calculation of TRGs based on this approach.**

Response: The Navy currently estimates risks due to exposure to individual TPH or TOG components only. The Navy no longer develops TRGs for TPH or TOG.

Comment 3: **Groundwater IRAs for IR-12 and IR's-11, 14, and 15, are proposed as pilot studies, with unknowns regarding effectiveness, treatment and disposal requirements. These pilot studies are described as fulfilling both the objective of determining feasibility and beginning remediation. It is not clear what the Navy envisions as the procedural steps for documenting and following up on these studies. A pilot study would normally be documented in a work plan and a report of results, to be incorporated into a Feasibility Study. An interim remedial action would be documented in a Interim Action ROD and a removal action in an Action Memorandum. What is intended for these "pilot" studies?**

Response: Groundwater IRAs were proposed only for Sites IR-12, IR-14, and IR-15. The purpose of each IRA is to attempt to extract and recover free product and to gain hydraulic control of impacted groundwater. The IRAs would be implemented as pilot studies in order to test the operation of the extraction and treatment system and to collect further design data. Groundwater extraction and treatment systems are typically implemented in procedural steps: (1) bench-scale testing, (2) pilot-study, and (3) full-scale operation depending on results of the preceding studies. The Navy intends to follow these steps as outlined in an interim action work plan.

The effectiveness of the extraction systems will be evaluated during the pilot studies; extraction of groundwater at Site IR-12 was determined to be feasible based on groundwater modelling presented in Appendix F, and extraction at Sites IR-14/IR-15 is potentially feasible using a collection trench. As described in Section 7.5.2.1, both carbon adsorption and bioremediation would be effective for groundwater treatment at Site IR-12. In addition, if effluent levels from the oil/water separator are below acceptance levels for publicly owned treatment works (POTW) discharge, treatment may not be required. A carbon adsorption module would be installed as a backup treatment method in case effluent levels increased above POTW limits after startup of the system. Treatment options would be similar at Sites IR-14/IR-15 if extraction is successful. Recovered free product would be disposed of at a facility such as the Evergreen Recycling Facility, as described on page 92 of the text.

The results of the studies would be documented in a report to the agencies, and would be used in the parcel-based Feasibility Study. If pilot-study results indicate that free product recovery and treatment are effective, and that implementing this alternative as an interim action would be advantageous, then an interim action Record of Decision (ROD) would be prepared.

Comment 4: **Please provide a discussion of the significance of the bedrock aquifer being in hydraulic communication with the overlying A aquifer at sites IR-11 and IR-15.**

Response: Bay mud deposits are not present between the A-aquifer and the Bedrock aquifer in at least some locations at Sites IR-11 and IR-15, which provides the potential for hydraulic communication between the overlying fill and the bedrock underlying these sites. Any communication that does exist between the fill and the bedrock would most likely be restricted to the uppermost, weathered portion of the bedrock. Groundwater elevations measured in November 1992 (Plate 12) indicate an upward gradient between the bedrock and the fill at wells IR11MW26A and IR15MW10F (approximately 50 feet apart) and a downward gradient between the bedrock and the fill at wells IR11MW25A and IR15MW09F (approximately 90 feet apart). Water levels measured in both July 1992 (Plate 11) and November 1992 (Plate 12) show the groundwater movement at both times was radially outward from the bedrock high.

Since groundwater contamination has not been observed at these locations, any hydraulic communication between the fill and the bedrock does not appear to be significant.

Comment 5: **For the surface soil removal at IR-11, how will hot spot removal to attain TRGs be verified?**

Response: After excavation of each hot spot, one sample from each shallow excavation sidewall (four samples) and floor (one sample) will be analyzed for lead and PCBs to verify that TRGs have been met.

Comment 6: **It is unclear that the risks associated with IR-11 surface soil are so different from those at IR-12 such that the former but not later are proposed for IRA.**

Response: At IR-11, Aroclor 1254 contributes 75 percent of the total carcinogenic risk. Interim action at this site will result in significant reduction in risk. At IR-12, lead and nickel are the primary contributors to risk. Lead and nickel are known to occur widely in shallow soil at HPA and can be best addressed on a facility-wide basis.

Comment 7: **How will the presence of elevated levels of VOCs and metals in groundwater impact the free product removal pilot study, especially with respect to the treatment train and discharge limits for the POTW?**

Response: The presence of VOCs and metals is not expected to have an effect on the free product removal. Groundwater effluent from the oil/water separator will be analyzed for TPH, VOCs, and Title 22 metals. Based on the results, POTW acceptance and the necessity of treatment prior to discharge will be determined. The San Francisco POTW's maximum acceptance levels for metals and VOCs in water are Title 22 Soluble Threshold Limit Concentration (STLC) values, and for hydrocarbon oil and grease are 100 mg/l. The acceptance level for a composite sample is 300 mg/l of total recoverable oil and grease. The POTW will review the analytical results of groundwater sampling performed during the RI to determine acceptance of the groundwater under permit. Maximum concentrations detected during the RI did not exceed POTW acceptance limits. However, groundwater will be sampled and analyzed during startup of the pilot study and periodically thereafter to evaluate compliance with acceptance limits, and a backup treatment module will be installed (please see Response to EPA Specific Comment 3). In addition, the manufacturer of the oil/water separator indicated that 100 mg/l is a readily achievable effluent concentration.

Comment 8: **In the detailed analysis of alternatives, the draft final ASR should provide an analysis of how and whether each alternative would comply with the ARARs identified in Section 5.**

Response: Please see Response to EPA General Comment 7.

Comment 9: **Neither the text, or the Tables in Appendix H provide sufficient breakdown of materials, quantities and unit prices to review the total cost of alternatives. Some of the numbers do not appear reasonable. For example, Table H5 indicates $837,000 for transportation and incineration of excavated soils which may be 11,000 cubic yards per the text, implying a unit rate of $76 per cubic yards for transportation and incineration, which is very low. Similarly, the volume of water to be pumped and unit rate of treatment are not provided in other tables in Appendix H.**

Response: Costs associated with the major components of the different alternatives were grouped together for ease of comparison. For example, all costs associated with excavation, backfilling, and compaction; removal or replacement of pavement; and stockpiling, handling, and sampling of soil were grouped together as excavation costs for each alternative. This allows for comparison of lump unit costs for each aspect of remediation rather than having to compare each individual line item for several different alternatives and then having to compute overall differences in cost for comparison purposes. Detailed unit costs and assumptions are available upon request.

The figure of $837,000 in Table H5 is reasonable based on a local cement kiln incinerator receiving hydrocarbon-containing soil under 30,000 mg/kg for beneficial reuse as an aggregate. The facility's program and reasons for the relatively low cost were described in Sections 7.5.2 and 7.6.2. The volume of water to be pumped and unit rate of treatment (if determined to be necessary) were estimated for cost comparison purposes based on data collected during performance of aquifer and slug tests. These costs will be reevaluated after implementation of the pilot study and collection of further design data allows for refinement of disposal and treatment needs.

Comment 10: **Figure F-1 shows the streamlines of groundwater flow to the extraction wells and not the groundwater elevation contours. The Figure should identify the groundwater elevation contours at steady state superimposed with the extent of the free product, in order to illustrate that the free product is effectively captured.**

Response: Figure F-1 showed the locations of wells and groundwater elevation contours at steady state superimposed on the extent of free product. Revised Figure F-1 includes a free product capture zone contour and is included as Attachment A of this document.

Comment 11: **A table or a figure in Appendix F, summarizing the modeling results would be helpful in determining the effectiveness of the pumping scheme. The calculated drawdown of various monitoring points (from center of the well to 200 feet away from the well) should be presented with their respective pumping times and the distance from the extraction well. The figure should show the cross section of the subsurface that includes location of the extraction wells and groundwater table, and well drawdown at steady state.**

Response: Appendix F contains text describing modelling parameters, and Figure F-1 presents the graphical results of the modelling. Aquifer and operating parameters will be further refined using results of the pilot study.

Comment 12: **To efficiently capture the free product from groundwater, a trade off between the number of wells and flow rate should be considered. A drawdown analysis using a one-dimensional unconfined aquifer model indicated that the proposed pumping scheme may not be able to capture the free product plume. Additional extraction wells may be needed to completely capture the free phase hydrocarbon plume at Site IR-12.**

Response: A two-dimensional model indicated that the proposed pumping scheme would be able to capture the free product plume (see revised Figure F-1 for the estimated free product capture zone). The pilot study will determine whether additional extraction wells may be needed; if necessary, they will be incorporated into the design of a full-scale extraction system.

Comment 13: **In Attachment A, page A-22, why was 500 mg/kg chosen as a reference concentration for lead when the IU/BK model indicated that 250 mg/kg would be the appropriate level? The decision is inconsistent with the effort to be conservative.**

Response: The Navy selected the 500 mg/kg as reference concentration for lead to be consistent with EPA policy for soil cleanup levels at Superfund and Resource Conservation and Recovery Action (RCRA) facilities.

Comment 14: **Page A-23. TTLCs are used in California to identify hazardous wastes, not the level at which a chemical in soil becomes hazardous. The TTLC for lead is not risk based; hence, it is not an appropriate reason for choosing 1,000 ppm as a reference level for workers.**

Response: The 1,000 mg/kg soil lead level represents the upper end of the range (500 to 1,000 mg/kg) in the Center for Disease Control's (CDC) *Preventing Lead Poisoning in Young Children* (1985, 99-2230) as

presenting a significant hazard to children. Selection of 1,000 mg/kg as a reference point for worker protection is based on a conservative approach because soil intake rates for workers are smaller than default values used in the biokinetic/uptake model. Furthermore, the blood lead level for inducing adverse health effects in adults is about four times higher than that for children.

Comment 15: **Attachment A, page A-27, Paragraph 1, states that the subchronic RfD for diesel was obtained by multiplying the chronic RfD for diesel by 10 because the chronic RfD for diesel is based on a subchronic toxicity test. However, on page A-29, the subchronic RfD for gasoline was given the same value as the chronic RfD because the chronic RfD was based on a chronic toxicity test. Please explain the logic of those decisions.**

Subchronic RfDs should be larger than chronic RfDs because the exposure time is shorter. So, if a chronic RfD were based on the results of a chronic toxicity test, the subchronic RfD should be adjusted so that it is larger than the chronic RfD. If the chronic RfD were based on the results of a subchronic toxicity test and no adjustment were made for the difference in exposure time, the chronic and subchronic RfDs should be equal. However, if in the process of deriving the chronic RfD an exposure time adjustment were made to obtain a lower RfD, the adjustment should be reversed to obtain a subchronic RfD.

Response: EPA's Health Effects Assessment Summary Tables (HEAST) discuss the methods used to derive reference doses (RfDs). The chronic RfD for diesel was estimated from a subchronic study; therefore the chronic RfD was obtained by dividing subchronic RfD by 10. The Navy needed a subchronic RfD for diesel, which was not readily available. Therefore, the chronic RfD was multiplied by 10. For gasoline, the Navy needed a chronic RfD value which was available without adjustments.

Comment 16: **Page A-27, Paragraph 2. Since the Hunters Point facility is in California, California's guidelines on soil cleanup levels for diesel and gasoline should be included in the discussion of State-established cleanup levels for those products (cf. Leaking Underground Fuel Tank Manual, State of California, October 1989).**

Response: Point source contamination at the Group 5 sites is not known to be associated with any leaking underground storage tanks; therefore, the manual was not referenced.

Comment 17: **Page A-32. The first unnumbered paragraph states that commercial and industrial workers were assumed to be exposed to groundwater contaminants by ingestion only. Nowhere on Page A-31, 32, or 33 is a statement made regarding how residents are assumed to be exposed. Please correct this.**

Response: The following sentence regarding exposure routes for residents should have been added: "Residents are expected to be exposed via ingestion and inhalation to VOCs and via ingestion only for other classes of contaminants." This sentence will precede the statement regarding exposure routes for commercial and industrial workers.

Comment 18: **Page A-31 states that "there are no wells within the San Francisco city limits that have been used for drinking purposes since 1935..." The existence of the bottled water company in the vicinity of HPA would make this statement incorrect.**

Response: The Albion Springs facility uses infiltration galleries, not wells, per se, to extract groundwater, although the implication that water withdrawn from the subsurface is used for drinking water purposes is correct.

The *Draft Final Report of Results Work Plan Addendum No. 3, Parcel A Site Inspection Report (October 15, 1993)*, evaluated the nature of groundwater in Parcel A and its possible connection to the drinking water spring used by the bottled water company. The investigation found that movement of groundwater encountered in bedrock in the northerly areas of Parcel A to off-site areas is considered unlikely.

Comment 19: **Page A-37 states that for TPH as diesel the Regional Water Quality Control Board recommended a soil cleanup level of 1,000 ppm. This number appears to be in error. We are unaware of the RWQCB recommending a level this high.**

Response: The following references are given as examples when the California State Water Resources Control Board (CSWRCB) or regional boards approved a soil cleanup level of 1,000 ppm for TPH as diesel:

- Harding Lawson Associates, July 23, 1990. *Remedial Plan, Hydrocarbon Area, Franciscan Ceramics Site, Los Angeles, California.*

  The cleanup level for TPH was 1,000 mg/kg, approved by the DTSC and the RWQCB in August 1990.

- Harding Lawson Associates, February 28, 1992. *Soil Remediation Activities, Tanks 53, 54, 56, and 57d, Site K (Seawall Lot 333), San Francisco, California.*

  The cleanup level for TPH was 1,000 mg/kg, approved by the RWQCB on April 15, 1992.

Comment 20: **Why was the cancer risk to the 0-6 year-old child estimated? This in not a conventional procedure. The 30-year residence time may be divided into two age segments (0-6 years and 7-30 years) to account for the larger soil ingestion rate of the 0-6 year old child, but the risk to each age segment should be summed.**

Response: The Navy currently estimates total carcinogenic risk by summing risks to each age group.

Comment 21: **In Section 6.7.1, page 72, Volume I, the target remedial goal (TRG) tentatively established for mercury is not clear. Is the mercury TRG for total mercury, elemental, or organic mercury?**

Response: In accordance with the approved quality assurance project plan, samples collected from HPA were analyzed for total mercury. The estimated risk and the TRG presented are for total mercury.

II. DTSC COMMENTS AND NAVY RESPONSES

DTSC Technical Comments

Comment 1: **The criteria used for the Group 5 ASR groundwater removal actions are not realistic, practical nor were followed consistently. Some areas of contamination were not recommended for removal action while others were. Contour maps are not accurate, and in some cases, could not be verified by the Department. The use of risk level 1 in 10,000 to calculate HBLs, the loose interpretation of ARARs, and what appears to be various set of criteria are impractical and confusing. Further, the Navy has not addressed the issue of TPH level in the soil and groundwater yet. Knowing the groundwater flow direction, the proposed TRGs for groundwater (page vii) seem to ignore the impact of contamination on the Bay. The Department believes that performing a risk assessment on TPH is inappropriate. For more information on the Regional Water Board's comments please see previous ASRs.**

Response: As stated on page ii of the text, interim actions at HPA are considered appropriate when either of the following exists:

- Contamination related to point sources represents an imminent threat to human health, or
- The need for final remedial action is likely, and interim actions will expedite final actions.

The rationale used to develop these criteria is presented in Section 2.2 of the ASR, along with a discussion of limitations imposed on the scope of the ASRs (as discussed in meetings between the Navy and the agencies) because of the status of data gathering at HPA. The criteria are intended to identify realistic, practical, and achievable opportunities for interim action.

An interim action cannot address every type of contamination at a site. According to EPA guidance, interim action should focus on contamination that can be addressed quickly (which at HPA means prior to completion of the parcel RI/FS studies). For the reasons stated in Section 2.2 of the text, the ASR process was proposed to evaluate the need for interim action because of limitations on the ability to complete a comprehensive, approvable RI/FS for the sites under consideration at the time the ASR process was developed. The parcel studies will consider all facets of contamination at HPA and use all available nonrejected data collected as part of the RI in evaluating risk. The parcel studies will address areas that were not proposed for interim action, and will be carried out when all pertinent data have been collected.

A rigorous RI/FS type of evaluation was attempted in the Operable Unit (OU) II reports that covered the remedial investigation (RI), public health and environmental evaluation plan (PHEE), and the feasibility study (FS). At that time, completion of an agency-approvable RI/FS for geographically isolated sites was identified as not achievable or practical. The ASR process was developed in direct response to these constraints as a mechanism for achieving consensus on opportunities for interim action at HPA while acknowledging in a realistic way the practical constraints of the RI/FS process.

As stated on page A-46 of Appendix A, the risk assessment performed for each site recommended interim action at sites where "the cumulative health risks via exposure to multiple contaminants are significantly above the target risk levels of concern to pose an imminent or potential threat to human health and to provide the opportunity for the greatest risk reduction via interim remediation."

These recommendations were then subjected to criteria described on page 74 of the text for definition of interim action remedial units:

- The contamination is associated with point sources from site-related activities.
- The levels of contamination present do not comply with ARARs such as MCLs.
- Current site conditions pose an imminent threat to human health.
- Potential long-term risks to current or likely future users exist; that is, final remedial action is likely.
- Data sufficient to design and implement remedial action are available and such an action would not exacerbate the problem or hinder future implementation of long-term action.

The evaluation of the need for interim action at a site was considered at different stages of the ASR process; however, the Navy believes the criteria were applied consistently at each site.

In regard to contour maps, please see Response to DTSC Technical Comment 7. In regard to risk levels, please see Response to DTSC Comment 5. In regard to ARARs, please see Response to EPA General Comment 1 and EPA General Comment 7. In regard to development of risk levels for TPH, please see Response to EPA General Comment 2.

In regard to groundwater flow direction and the impact of contamination on San Francisco Bay, the ASRs were developed to address immediate concerns at HPA while the ecological risk assessment (ERA) is being performed. Rather than delay the RI/FS process while waiting for results of the ERA, the ASRs were implemented to expedite action on areas where final action was likely based on human health concerns (please see Section 2.2 of the text). The results of the ERA will be addressed in the parcel RI/FSs; interim actions are focused to meet the criteria stated in Section 2.2 which were developed in response to limitations imposed by the status of data gathering and analysis at HPA.

In the future, the Navy will endeavor to clarify the use of the various criteria applied in different components of the ASR.

As stated in the report, the focus of the Group 5 ASR is potential impacts on human health resulting from direct exposure to site-related contaminants. The potential impact resulting from the exposure of ecological receptors to contaminants in the bay will be assessed in the parcel RI/FS.

Comment 2: **Although a recommendation for a removal action is encouraging, its scope must be carefully evaluated to include the President 5 point plan. The Department, along with Water Board and US EPA, has submitted comments pointing out the deficiencies in the previous ASRs, but the Navy has repeated its approach without much consideration of agencies position, policy and requirements. If these issues are not resolved, the parties may end in a dispute. The Department is trying, diligently and in good faith, to resolve issues and concerns before escalating them to formal dispute. The Department invites the Navy to review its position and engage in cooperative manner.**

Response: The Navy would like to clarify that the ASRs do not embody only removal actions as stated in the comment. *Interim Final Guidance on Preparing Superfund Decision Documents (EPA, 1989)* states "Interim actions, which may be removal or remedial actions, can be taken to respond to an immediate site threat or to take advantage of an opportunity to significantly reduce risk quickly."

As explained in Response to DTSC Technical Comment 1, the Navy has considered the President's plan in recommending several interim actions in areas where remediation could be initiated quickly. For example, the Navy recommends beginning free product recovery in several areas to expedite remediation where the final actions determined as part of the parcel RI/FS would not be adversely affected. As such, the Navy has demonstrated a desire to work in good faith and implement the President's goals.

Comment 3: **Although a removal action is a beneficial step in the cleanup process, nonetheless, its scope must be realistic, sensible, and consistence with the final remedy. It must also have a consistent set of criteria that are followed throughout the report. It should be sensible in removing contamination which, if left in the environment, will pose a threat to human health and the environment. The environmental impacts are to be evaluated and incorporated, if necessary, to be realistic. Although, contaminations may not pose an imminent threat to humans at this time, they have an adverse impact on the Bay. This criterion should be added to the list on page ii to be practical. Environmental impact could be a driving factor in remediating a site at Hunters Point. It is therefore logical to consider the environmental impacts for any removals. This ASR does not consider the environmental impacts.**

Response: Please see Responses to DTSC Technical Comments 1 and 2. Section 2.2 of the text stated that the ecological risk was not included as a criterion for interim action, because ecological receptors and potential risks to such receptors have not been evaluated. The ecological risk assessment is in progress; potential effects of chemicals on ecological receptors at HPA will be addressed in the parcel RI/FS reports.

Comment 4: **In a spirit of cooperation, the Department has previously submitted comments pertaining to problematic issues with the ASRs, hoping to avoid lengthy dispute forum. But the Navy has refused to alter its approach by insisting that the ASRs are to be used only for removal actions. Although the Group 5 ASR is a secondary report, nonetheless it has failed to resolve comments and issues raised by agencies in previous ASRs. The removal actions consider only a fraction of contamination and leave the rest for later cleanup. This does not seem to be realistic nor prudent.**

Response: Please see Response to DTSC Technical Comment 1.

Comment 5: **Above all, the Navy needs to explain, convincingly, why it is beneficial, sensible, realistic and economically wise to use a 10^{-4} level as the criterion for presenting exposure scenarios at this time and 10^{-6}, later, as part of the parcel RI/FS. Use of a 10^{-4} risk level as the criterion for presenting exposure scenarios under represents the number and types of scenarios that may result in significant risk. The Department considers level of 10^{-6} as the appropriate point of departure. This comment has been forwarded to the Navy on many occasions.**

Response: The use of a carcinogenic trigger level of 10^{-4} for initiating interim remedial action is based on the following two suppositions. First, the removal of all soils at or above the trigger level will result in a

residual risk of less than 10^{-4}. Second because background concentrations at the site may contribute risk as high as 10^{-5}, areas requiring further remediation could be minimal.

Comment 6: **The objectives identified on page ii have not been used consistently. There seem to be two sets of distinct criteria; one for soil, and the other for groundwater. Adding to the confusion, it is not clear why some contaminated areas are recommended for removal and others are not when equally satisfying the criteria on page ii.**

Response: Please see Responses to DTSC Technical Comment 1 and EPA Specific Comment 6. If specific examples are given, the Navy would be glad to explain the rationale used. In the future, the Navy will attempt to clarify the use of the various criteria as stated in the Responses to EPA Specific Comment 6 and DTSC Technical Comment 1.

Comment 7: **Although, plate 32 data indicate areas of high contamination, there are not TOG and Diesel contour maps for IR-13. Please explain why TOG level of 170,000 ppm at IR-13 should not be considered for an interim removal action. It seems likely that a final remediation is needed, thereby satisfying the second objective on page ii. Also, please explain why no removal action is recommended at site IR-13 when Plate 31 shows area of lead and mercury contamination. Further, the lead contour map presents contamination smaller in area than what it appears to be from the data. The map does not include IR13B00B3. Please explain.**

Response: Elevated concentrations of TOG at Site IR-13 are isolated from one another, and are not amenable to contouring. The contours shown on the version of Plate 31 in the Draft ASR were in error; a revised Plate 31 is included in Attachment A of this document. Please see Response to DTSC Technical Comment 14.

Comment 8: **Since there are no analytical data included in the report, the Department can neither verify nor agree with the proposed area of contamination shown on plates 41 and 42.**

Response: To keep the volume of the ASR report short, as agreed upon previously by the Navy and the agencies, the data were not tabulated on a sample-by-sample basis in the report. This is consistent with the approach used in previous ASRs. Summary tables showing all chemicals detected in soil and groundwater are included in Tables 8 through 23 and Tables 33 through 48. Data relevant to Plates 41 and 42 are provided in Tables 33 through 36 and 39 through 46, respectively. Detailed analytical reports will be provided in the parcel RI/FS.

Comment 9: **Page viii, paragraph 4, if there are no potential threats to human health, why are you undertaking a removal action? If a risk assessment was performed (page vi) to evaluate a need for an interim action why do a removal action where risk values indicate no threat? Does not this contradict the criteria described on page ii?**

Response: The second criteria on page ii is met for the debris because:

- The need for final remedial action is likely.
- Interim action on improperly disposed of debris will expedite final action.
- Interim action will mitigate the potential for the spread of contamination from chemicals associated with the debris.

Final action is considered likely because of California regulations governing discharges to land (23 CCR, Division 3, Chapter 15), as noted in Section 5.3.1.

Comment 10: **There is not reference to cross section information on plates 27 and 28. Please provide.**

Response: Plates 27 and 28 were referred to in Section 4.4.3.1, bullets 2 and 3, respectively, of the ASR.

Comment 11: **Since groundwater flow direction is towards the Bay at sites 11, 14, and 15, contamination is likely migrating into, and thus contaminating the Bay. Although the groundwater pathway was not considered for this ASR, it is very important to insure the safety of the environment. The interim removal action must begin soon to stop the migration of contaminated groundwater. The Department is requesting a meeting with other parties to tackle this issue in earnest.**

Response: Only a portion of the groundwater flow is toward the Bay, specifically at Site IR-11. The groundwater gradient at Site IR-14 and the westernmost portion of Site IR-15 (Oily Waste Ponds) is to the west and northwest, but is relatively low. The contamination observed in groundwater (mainly hydrocarbons) at Sites IR-11, IR-14, and IR-15 is not observed in those monitoring wells that lie between Sites IR-11, IR-14, and IR-15 and the bay. In groundwater samples collected from Monitoring Wells IR02MW299A, IR02MWB-5, IR02MW196A, IR02MW210B, IR14MW09A, and IR14MW10A, carcinogenic and noncarcinogenic PAHs and TPH as diesel and as gasoline were not detected.

The ASR focuses on human health risk and not environmental risk, which will be covered as part of the ERA and presented in the parcel RI/FS reports. However, the Navy has proposed pilot studies at each of the areas containing free product to gain hydraulic control and begin remediation at the earliest opportunity.

Comment 12: **Since the ASRs are to be used for interim removal action, a threat to human health and the environment should be the criteria regardless if the threat is due to point source or not. It is not logical that although an imminent threat to human heath exists, it is not considered for a removal action if the origin is a point source. As it is expressed, the report leaves the impression that removal actions are required when there is a point source. Pursuant to § 300.415 CFR, a threat to human health and environment is the criterion for a removal action. Please explain if the a removal action depends on the imminent threat to human health and environment (Figure A-6). It appears that there are different sets of criteria for contaminated groundwater. Figure A-6 flowchart identifies "imminent threat to human health" as a criterion for an interim action while criteria on page ii require a removal action if there is a point source. Please clarify.**

Response: The Navy would like to clarify that the ASRs are to be used to identify the need for interim action, whether it is a remedial or removal action. Please see Section 2.2 of the ASR for a discussion of the scope of the ASR, and Responses to DTSC Technical Comments 1 and 2.

As stated on page ii of the text, "Chemicals associated with nonpoint sources are not evaluated in the ASR; because these chemicals are present throughout HPA, it is impractical to develop interim actions for them at individual sites." These chemicals, including nonpoint sources, will be addressed in the parcel RI/FS studies. If remedial action is deemed necessary for a nonpoint source, it will be addressed at the time of the parcel RI/FS. Figure A-6 should have reiterated that the imminent threat to human health from point sources was considered as a criteria for interim action as stated previously in the report.

Comment 13: **Please provide tables listing chemicals of concern and how they were chosen as such.**

Response: No chemicals were eliminated as chemicals of concern (COC) in the ASR. Therefore, a table listing COCs and the rationale for their selection was not presented.

Comment 14: **Although objectives were identified on page ii, they were not followed consistently. Interim removal actions seem to be based on other criteria none of which are mentioned. For example, at IR-13 even though TOG, lead and mercury levels are high, no removal action is recommended. In addition, other chemicals with hazard indices higher than one are also not recommended for removal action. Please explain.**

Response: Please see Responses to DTSC Technical Comments 1 and 2 and EPA Specific Comment 1. TOG, lead, and mercury occur widely at HPA and can be best addressed on a facility-wide basis.

Comment 15: **The relevant analytical data are missing from the report. Therefore, the Department cannot comment on the data related issues.**

Response: Please see Response to DTSC Technical Comment 8.

Comment 16: **Since the intent of the ASR is to demonstrate the need for a removal action, it is not appropriate to use "target remedial goals". The text should read "target removal goals" to be consistent with the intent. Further, a removal action should consider future human receptors at the site.**

Response: The intent of the ASR is to demonstrate the need for <u>interim</u> action, which can consist of remedial or removal action. Please see Response to DTSC Technical Comment 2. In fact, no removal actions were recommended. Therefore, the use of target remedial goals seems to be consistent with the approach taken in the ASR. All interim actions were recommended for areas where risk to potential future human receptors (both residential and commercial) exceeded target risk levels, and thus considered future human receptors at the site.

Comment 17: **The second objective identified on page ii, is valid if the ASR attempts to fully characterize the site. It is not possible to know, if there is a need for final remedial action based on the ASR where the scope is limited and tailored for a specific action. The report does not provide any information on the environmental impact, lacks full site characterization and does not address previous, yet pertinent,**

agencies' comments. For example, the vertical extent of groundwater contamination is not known at this time. How do you know whether or not you need to remediate?

Response: If available data evaluated in the ASR indicate concentrations of chemicals are present above target remedial goals, it is indeed likely that final remedial action will be necessary whether or not ecological considerations or background levels will also figure into the final action. Please see Responses to DTSC Technical Comments 1 and 2 regarding environmental impact. The RIs were not tailored towards interim action; the parcel RIs will address any areas where data gaps were identified during site characterization, and the parcel PHEE and FS will evaluate remediation of these areas.

Regarding the vertical extent of groundwater contamination, where the A-aquifer was found to be in contact with other aquifers (e.g., the Bedrock aquifer at IR-15) compounds detected in the A-aquifer were either not detected in the Bedrock aquifer or were detected at much lower concentrations on an inconsistent basis. This indicates that the characterization of the vertical extent of groundwater contamination is adequate.

Comment 18: **Plate 6, does not correspond to Plate 2. What happened to 11B004, 11B003, and 11MW27A and many others? This cross section is not accurate. What happened to B-B'?**

Response: Not all borings completed at Sites IR-11, IR-14, and IR-15 are represented on this cross section. Borings are chosen during a selection process, based on depth of penetration, availability of chemical data, and the borings' proximity to one another. Borings IR11B004, IR11B003, and IR11MW27A were not shown because they were only completed to a depth of 10.5 feet below ground surface (bgs). The intersection of cross sections A-A′ and B-B′ was not shown on Plate 6; this was an oversight. Revised Plate 6 is provided in Attachment A of this document. Cross section B-B′ was shown on Plate 37 in the ASR.

Comment 19: **Plate 7 and 3, the cross section Plate 3, what happened to 12MW21A, 12B006 and many others? Where is B-B'? Where is C-C'?**

Response: Please see Response to DTSC Technical Comment 18. Boring IR12B006D was chosen for depiction on cross sections A-A′ and C-C′ because soil chemical data were available from this boring. The intersections of cross sections B-B′ and C-C′ with A-A′ were not shown on Plate 7; this was an oversight. Revised Plate 7 is provided in Attachment A of this document. Cross sections B-B′ and C-C′ were shown on Plates 27 and 28, respectively, of the ASR.

Comment 20: **Table A-4, explain why you undertook statistical analysis of VOCs and SOCs in the soil? Are you saying that VOCs and SVOCs are background related? Are you saying that these are naturally occurring?**

Response: No volatile organic compounds (VOC) or semivolatile organic compounds (SVOC) were eliminated as COCs in soil as a result of statistical analysis. The only statistical procedure performed on the VOC or SVOC data was to estimate exposure point concentrations. Statistical analysis was not conducted for background data, because it was not available.

Comment 21: **Page 4, paragraph 2, please update this section.**

Response: This section will be updated in future reports.

Comment 22: **Page 8, § 2.1, the US EPA's definition of a removal action contradicts the criteria used for Group 5 ASR removal action. The Navy needs to articulate if the intent is to follow the CERCLA definition of a removal action or those identified on page ii. How do you reconcile?**

Response: As stated previously, the criteria were put forth for interim action, not removal actions exclusively. Please see Response to DTSC Technical Comment 2.

Comment 23: **Page 10, paragraph 2, residential and commercial use at the site are not considered pathways. Soil ingestion, dermal adsorption, and inhalation are considered pathways.**

Response: Comment acknowledged. The terms residential and industrial actually refer to land-use scenarios. Ingestion, dermal absorption, and inhalation are routes of exposure.

Comment 24: **Page 19, top paragraph, the crushed drums and cans in the trench are considered man-made therefore a point source. Please explain why you believe the trench is "suspected point source" location?**

Response: The disposal trench area was referred to as a suspected point source in the discussion of the history of the site prior to the RI investigation. Subsequently, the RI confirmed the disposal trench area as a point source, and it was referred to as such in Section 4.4.3.1 of the text, bullet 2.

Comment 25: **Page 26 § 4.2.6.2, where are the analytical data? Please provide a reference.**

Response: Please see Response to DTSC Technical Comment 8. The analytical data for all compounds detected in soil, groundwater, and oil at the Group 5 Sites are presented in Tables 12 through 23 and Tables 33 through 48 in the Group 5 ASR. The analytical data (including all nondetected compounds) for all of the Group 5 Sites (except Site IR-17) will also be presented in the Parcel E RI/FS. The analytical data (including all nondetected compounds) for Site IR-17 will be included in the Parcel D RI/FS.

Comment 26: **Page 30, § 4.4, if a source is anthropogenic, it is thus considered point source. Why are anthropogenic sources not considered a point source? Does not this contradict objectives on page ii? Please explain.**

Response: Nonpoint anthropogenic sources at HPA include atmospheric fallout of PAHs from engine exhaust and oil refineries, gasification plants, application of pesticides in landscaped areas, and leakage of petroleum hydrocarbons from automobiles and trucks. These types of sources are not associated with activities occurring at particular buildings or areas, but rather are the result of facility-wide activities or regional activity. Chemicals associated with nonpoint sources were not evaluated in the ASR as described on page ii and in Section 2.2 of the text, but will be addressed in the parcel RI/FS.

Comment 27: **Page 31, last paragraph, please explain what you mean by "potentially contaminated groundwater"? Is the groundwater contaminated? Is the contamination adversely impacting the water quality? Please explain what you mean by "other criteria". Why do you think if contamination is detected in two sampling rounds it would pose more threat than if detected once? Is this an additional criterion added to those identified for soil and groundwater? How and why these criteria are developed?**

Response: Groundwater is not considered to be contaminated if compounds are not detected on a consistent basis. Detections in two of the three monitoring rounds were considered to constitute consistent detections. If compounds are not detected on a consistent basis, they are not considered to have a consistent, adverse effect on water quality.

Other criteria include proximity to soil contaminated with similar constituents and the site history of chemical usage as discussed in the chemical data evaluation approach, Section 4.4.1 of the text. The identification of chemicals most frequently detected in groundwater samples was used as a screening device to identify potential

groundwater contamination in the ASRs. The chemical data evaluation approach was outlined in Section 4.4.1 of the text. The discussion of this approach as outlined in the Group 5 ASR has been expanded in response to agency comments on previous ASRs.

Comment 28: **Requirements from the Department, and the Air Board must also be incorporated in a removal action. Detailed requirements will be forwarded to the Navy when the design workplan is submitted.**

Response: Because the ASR recommends interim actions and not removal actions, per se, any requirements of the Department and Air Board will be considered during implementation of interim action. As a coordination issue, it would reduce the effort expended in the review and revision process if agencies provided detailed requirements for agreed-on actions before the Navy has expended effort in preparing a work plan, rather than after submittal of a plan.

III. OSA (DTSC) COMMENTS AND NAVY RESPONSES

A. OSA General Comments

Comment 1: **OSA does not customarily examine site characterizations in detail. Therefore, we have assumed that sampling of environmental media, analytical chemistry data, and quality assurance procedures are adequate for the purposes of risk assessment.**

Response: Sampling and analyses of environmental media were conducted following the U.S. EPA and Cal/EPA approved work plan and quality assurance project plan (QAPjP). The QA/QC procedures specified in the QAPjP are adequate for the purposes of risk assessment.

Comment 2: **The document was reviewed for scientific content. Minor grammatical or typographical errors that do not affect the interpretation have not been noted. However, these should be corrected in the final version of the document.**

Response: It should be noted that the ASRs are secondary documents, and, as such, will not be resubmitted. Attachment A of this document includes revised plates from the ASR relating to errata.

Comment 3: **Future changes in the document should be clearly identified. This may be done in several ways: by submitting revised pages with the reason for the changes noted, by the use of strikeout and underline, by the use of shading and italics, or by cover letter stating how each of the comments hereunder has been addressed.**

Response: Please see Response to OSA General Comment 2 above.

Comment 4: **Much of the material in Attachment A is covered elsewhere in the text. This is a problem for a reviewer because while one does not wish to charge the RP for the time to read the same material twice (or more), it is difficult to know if there are additional significant items in Attachment A, which are not covered elsewhere, without reading it. If this redundancy is felt to be necessary, it might be helpful to present some brief guidance to the document. For example if Attachment A is the most complete version of the risk assessment and contains all the essential points found elsewhere in the text, this could be stated.**

Response: Comment acknowledged; however, page 57 of the text referenced Attachment A as containing "A comprehensive description of risk assessment methodology and results."

B. OSA Specific Comments

Comment 1: **Page 58: A risk of 10^{-4} may be an acceptable trigger for interim removal actions, but it is not acceptable as an action/no action threshold nor as a basis for an across-the-board remedial goal.**

Response: Comment acknowledged.

Comment 2: **Page 58: The use of the lower of the 95% UCL or the maximum values as the exposure point concentration for soil may not be acceptable, depending on the future land use. For residential use, or other uses involving subdivision of the area into smaller units, the exposure point concentration is the highest average value within any 1000 ft^2 area, which often means the highest value (1). The basis for this policy is that if potential receptors are likely to be exposed to the entire site then a site-wide (UCL on a) mean is an appropriate statistic. But if individuals are likely to be exposed to smaller units that may have higher average concentrations their exposure should be considered and dealt with appropriately.**

Response: In accordance with the Risk Assessment Guidance Document *Human Health Evaluation Manual* (Part A) (*EPA, 1989*), the 95 percent UCL is used to account for variability and sample size in estimation of exposure point concentrations. Exclusive use of the maximum detected values would result in a greater degree of uncertainty and would not allow estimation of the reasonable maximum exposure. Also, because future subdivision of the site cannot be predicted at this time, use of the 95 percent UCL is more reasonable than the exclusive use of maximum detected values.

Comment 3: **The analytical results in many of the tables are reported with anywhere from 1 to 7 significant figures. It seems unlikely that the analytical precision is that variable.**

Response: The analytical results shown represent the actual values reported by the analytical laboratories. Since several different analytical laboratories were used during the investigation, the number of significant figures reported varied.

Comment 4: **Section 6.1: The references to tables A16, A26, and A28 appear to be incorrect.**

Response: The tables should have read as follows:

Site	Subject	Media	Listed Table	Corrected Table
IR-11	Adult and Child	Surface Soil	A-16	A-46
IR-11	Adult and Child	Subsurface Soil	A-26	A-48
IR-11	Adult and Child	Groundwater	A-28	A-30
IR-11	Potential Worker	Surface Soil	A-27	A-47
IR-11	Potential Worker	Subsurface Soil	A-29	A-49
IR-11	Potential Worker	Groundwater	A-17	A-31

Comment 5: **Section 6.1.1 and other sections: We do not agree with the separate consideration of cancer risks to children and adults as though they were different individuals. The assessment of carcinogenic risks from residential exposures should include 6 years as a child and 24 years as an adult in an additive manner (1). Adult residential risks need not be separately calculated, as they will always be less than for children or child/adult scenarios, when the latter are done correctly.**

Response: Please see Response to EPA Specific Comment 20.

Comment 6: **Section 6.1.1: Although it appears to be the RP's choice, it seems inefficient to select interim remedial action based on a trigger of 10^{-4} and then consider additional remediation later with a lower trigger, resulting in the possibility of two separate remedial actions on the same area.**

Response: Please see Response to DTSC Technical Comment 5.

Comment 7: **Section 6.2.1: What is the basis of the RfD used for total oil and grease (TOG) to develop a hazard index and a health based level (HBL)? If a hazard index (HI) of 1.0 is the trigger for interim action, why is IR12, with a maximum HI of 1.8 not recommended for interim action?**

Response: Forthwith, the Navy will assess risk due to exposure to individual components of TOG; risk due to TOG as a mixture will no longer be assessed.

Comment 8: **Section 6.2.1, page 62: IR12 subsurface soil is not recommended for remediation because the levels do not exceed the health-based levels of concern. But the other criterion on page ii does not appear to have been considered.**

Response: Please see Responses to EPA Specific Comment 1 and DTSC Technical Comments 1 and 2.

Comment 9: **Section 6.2.2: It is stated that IR12 groundwater "may be considered for interim action". We believe that based on reduction in volume and mobility, interim action would benefit the RP as well as the environment. Also, chlorinated solvents, chrysene, and antimony are present at levels exceeding federal and/or state maximum contaminant levels (MCLs). These should also be candidates for remediation.**

Response: Please see Response to DTSC Technical Comment 1 regarding the application of criteria for the different components of the ASR. Because the criteria in Section 7 (page 74) were met for Site IR-12 groundwater, interim action alternatives were evaluated and an alternative was selected in Section 7.

Comment 10: **Section 6.3.1: If a hazard index of 1.0 is the trigger for interim action, why is IR13, with a maximum HI of 3.8 in surface soil and a maximum HI of 10 in subsurface soil not recommended for interim action? How can exposures to the highest levels of mercury result in a lower hazard index? How does the high 95% UCL for total dissolved solids (TDS) affect the cancer risk and HI for TOG? The lead concentration is also above the HBL. The HI for children appears to be driven primarily by TOG and lead, not mercury.**

Response: At IR-13, future potential noncarcinogenic risks are mostly due to exposure to elevated levels of TOG and mercury. These compounds are present throughout HPA and can be best addressed on a site-wide basis. Exposure to the highest level of mercury at that particular location (IR13B006) is expected to result in risk lower than those estimated under RME conditions due to exposure to other contaminants. Due to the high level of TDS in groundwater, exposure routes applicable to surface soil were conservatively considered for exposure to subsurface soil. Noncarcinogenic risk, due to exposure to subsurface soil, is mostly due to TOG. Therefore, the Navy did not select Site IR-13 as a candidate for interim action. Further clarification on the last comment is needed; lead was not included in developing HIs.

Comment 11: **Section 6.4.1: If a hazard index of 1.0 is the trigger for interim action, why is IR14, with a maximum HI of 7.1 in surface soil and a maximum HI of 3.7 in subsurface soil not recommended for interim action?**

Response: Please see Response to OSA Specific Comment 10. Similarly, the HI for soil at this site was driven by TOG. The Navy will no longer evaluate TOG as a mixture for estimating risk or developing HBLs. Therefore, soil at the site was not considered for interim action.

Comment 12: **6.5.2: The lead concentration in groundwater is also above HBLs.**

Response: Toxicity factors are not available for lead; therefore, the Navy did not develop an HBL for lead. Further clarification of the comment is needed.

Comment 13: **Section 6.5.1: Surface and subsurface soils each show hazard indices greater than one. Yet it is stated that the levels in these media do not exceed the levels of concern (a hazard index of one). This contradiction needs to be resolved.**

Response: The second and third sentence in this section should be corrected to read "the potential future carcinogenic risks to adults, children, and commercial/industrial workers posed by surface soil (a cumulative excess cancer risk of 3E-05) and subsurface soil (a cumulative excess cancer risk of 2E-05) at site IR-15 are less than the level of concern for interim action purposes (an excess cancer risk of 1E-04). The potential future noncarcinogenic risks are primarily due to nickel and TOG (as a mixture), which could be better addressed on a facility-wide basis.

Comment 14: **Table A-23 et seq: California cancer potency factors should also be used to develop risks and HBLs.**

Response: The Navy used the following standard EPA risk assessment hierarchy for selecting toxicity values. If a chemical-specific toxicity value was identified on the Integrated Risk Information System (IRIS), this value was used. If no chemical-specific IRIS value was available and a chemical specific toxicity value was identified in HEAST, that value was used. However, if a chemical-specific California EPA value was identified, it was used if no IRIS or HEAST value was identified or if the California EPA value was lower than the IRIS or HEAST values identified.

Comment 15: **Tables A-26-A28 and A41-A45: We appreciate the efficient, self-contained presentation of information in these tables. However, we do not agree with the body weight for children. See also comment 4. We are unfamiliar with the algorithm used to develop a volatization factor of 0.5; however, this value appears to be conservative.**

Response: The Navy understands the comment to refer to body weight of children for carcinogenic risk. A body weight of 70 kg was assumed because carcinogenic effects are developed over an individual's lifetime, which is spent mostly as an adult although exposure may occur during a specific time period, such as during childhood. However, the Navy currently uses 15 kg for body weight of children in estimating both carcinogenic and noncarcinogenic risks. The Navy assumed a volatilization factor of 0.5 as a conservative estimate.

Comment 16: **Section 6.1.1 et seq: The proposed interim remedial action is not specified in terms of the chemicals to be remediated, the levels to be achieved, or the approach to be used.**

Response: Chemicals to be remediated and the levels to be achieved are specified in Section 6.7. The Navy's approach for identifying the need for interim action from a human health risk perspective was discussed in detail in Appendix A.

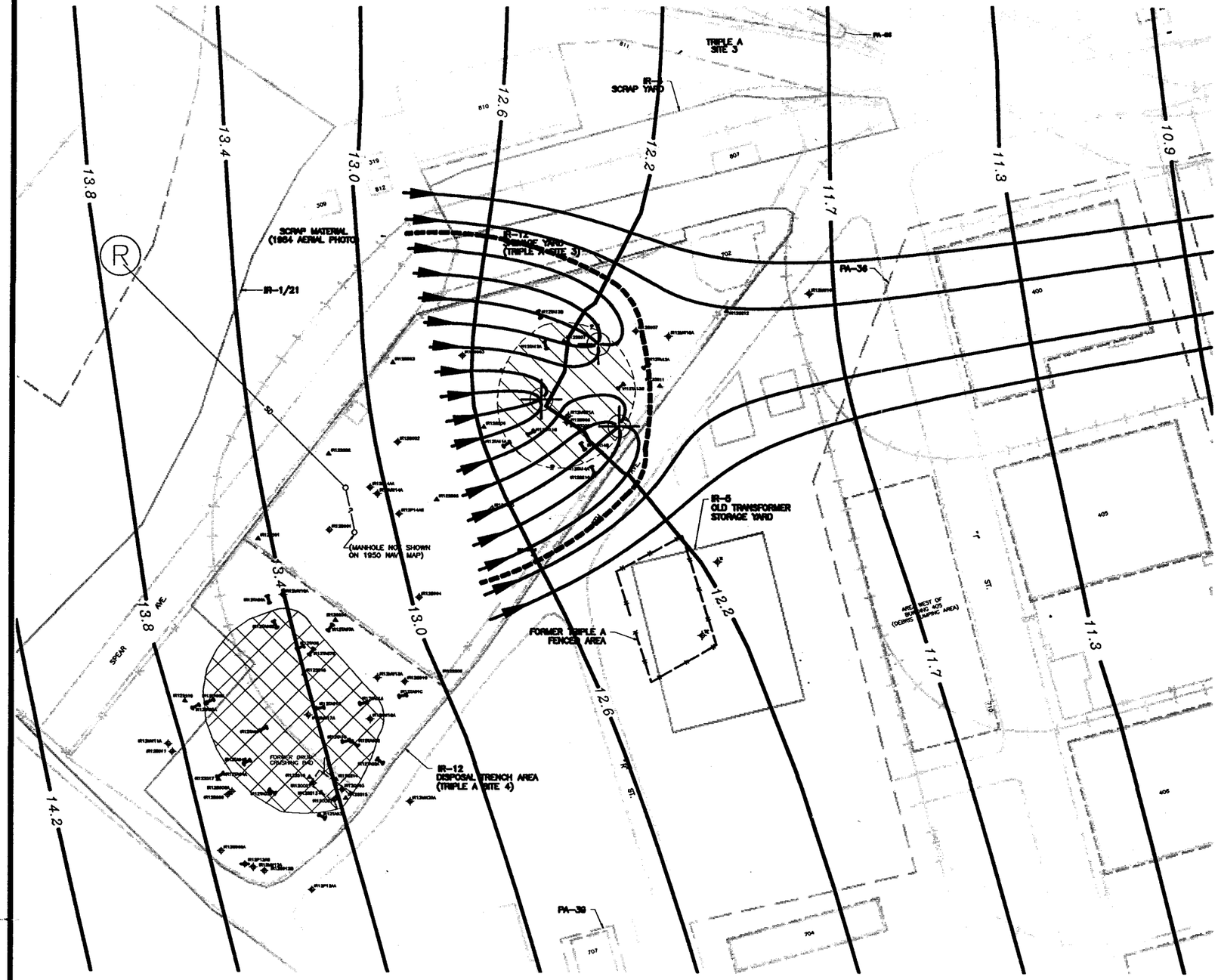
Comment 17: **Section 6.7.1: We do not agree with the HBL or the TRG for Arsenic. While the HBL based on non-cancer effects in children is acceptable, the cancer HBL should be lower. DTSC methodology would result in a HBL of about 0.1 for a risk of 10^{-6} so even with a 10^{-4} target risk the HBL should be 10.**

Response: The Navy developed the HBLs based on parameter values such as exposure frequency and exposure duration, selected specifically for the Group 5 sites. These parameter values may not be the same as the parameter values used by DTSC to develop the HBLs.

Comment 18: **Section 7.1: How were the selection criteria used? Did all of them have to be met? If not, how many?**

Response: Please see Response to DTSC Technical Comment 1. Only one of the criteria had to be met.

ATTACHMENT A



EXPLANATION:

RI SAMPLING LOCATIONS

- EXTRACTION WELL
- A-AQUIFER MONITORING WELL
- A-AQUIFER PIEZOMETER
- SOIL BORING
- TEST PIT; SYMBOL DOES NOT REPRESENT TRUE LENGTH OF TEST PIT
- SURFACE SOIL SAMPLE
- CONCRETE CORE SAMPLE

610 — EXISTING BUILDING

400 — EXISTING BUILDING BEING INVESTIGATED AS PART OF A PA

702 — LOCATION OF FORMER BUILDING

SD — STORM SEWER DRAIN LINE AND GRATE COVERED MANHOLES (STILL OPEN); APPROXIMATE LOCATION BASED ON 1950 DEPARTMENT OF NAVY STORM & SANITARY STORM SEWER MAP AND FIELD MEASUREMENTS.

- IR SITE BOUNDARY
- PA SITE BOUNDARY
- TRIPLE A SITE BOUNDARY
- RAILROAD TRACKS
- FENCE
- LATERAL EXTENT OF RESIDUAL AND/OR FREE-PHASE FLOATING HYDRCARBONS
- LATERAL EXTENT OF DISPOSAL AREA
- 13.8 — GROUNDWATER ELEVATION CONTOURS
- GROUNDWATER FLOW LINES
- FREE PRODUCT CAPTURE ZONE

0 150 300
SCALE IN FEET

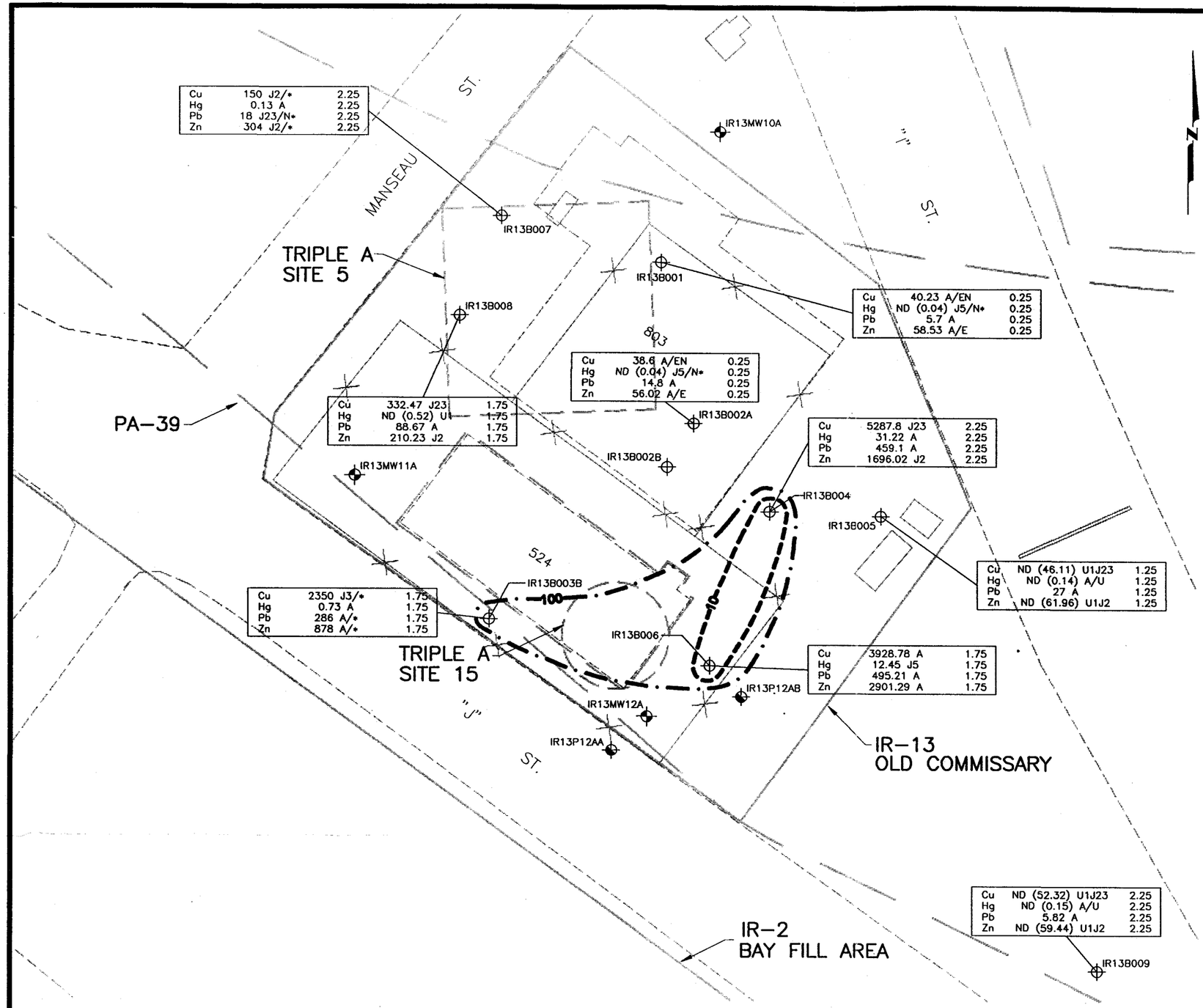
HPAN0376 150.0
19940211.1352

Harding Lawson Associates
Engineering and
Environmental Services

Site IR-12 Extraction System
Group 5 Alternative Selection Report
Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE **F-1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
JEB	11400 0810		7/93	12/93



EXPLANATION:

RI SAMPLING LOCATIONS

IR013MW10A — A-AQUIFER MONITORING WELL

IR013B001 — SOIL BORING

IR13P12AA — A-AQUIFER PIEZOMETER

ANALYTE: Cu – COPPER
Hg – MERCURY
Pb – LEAD
Zn – ZINC

MAXIMUM CONCENTRATION IN SOIL (mg/kg)

DEPTH (FT.) BELOW GROUND SURFACE WHERE SAMPLE WITH MAXIMUM CONCENTRATION WAS COLLECTED

Cu	40.23 A/EN	0.25
Hg	ND (0.04) J5/N+	0.25
Pb	5.7 A	0.25
Zn	58.53 A/E	0.25

PROJECT AND LABORATORY QUALIFIERS; DEFINITIONS ARE PRESENTED IN APPENDIX D

ND (0.04) — NOT DETECTED AT THE REPORTING LIMIT SPECIFIED IN PARENTHESES; ANALYTES DETECTED BELOW THE REPORTING LIMIT ARE SHOWN AS DETECTED VALUES AND ARE QUALIFIED AS ESTIMATED

10 — CHEMICAL CONCENTRATION CONTOUR FOR MERCURY (mg/kg)

100 — CHEMICAL CONCENTRATION CONTOUR FOR LEAD (mg/kg)

524 — FORMER BUILDING BEING INVESTIGATED AS PART OF A PA

803 — LOCATION OF FORMER BUILDING

IR SITE BOUNDARY

TRIPLE A SITE BOUNDARY

PA SITE BOUNDARY

FENCE

NOTE:

(1) THE CHEMICAL CONCENTRATION CONTOURS ARE BASED ON ONE INTERPRETATION OF THE DATA; OTHER INTERPRETATIONS MAY BE POSSIBLE.

(2) COPPER AND ZINC ARE NOT CONTOURED.

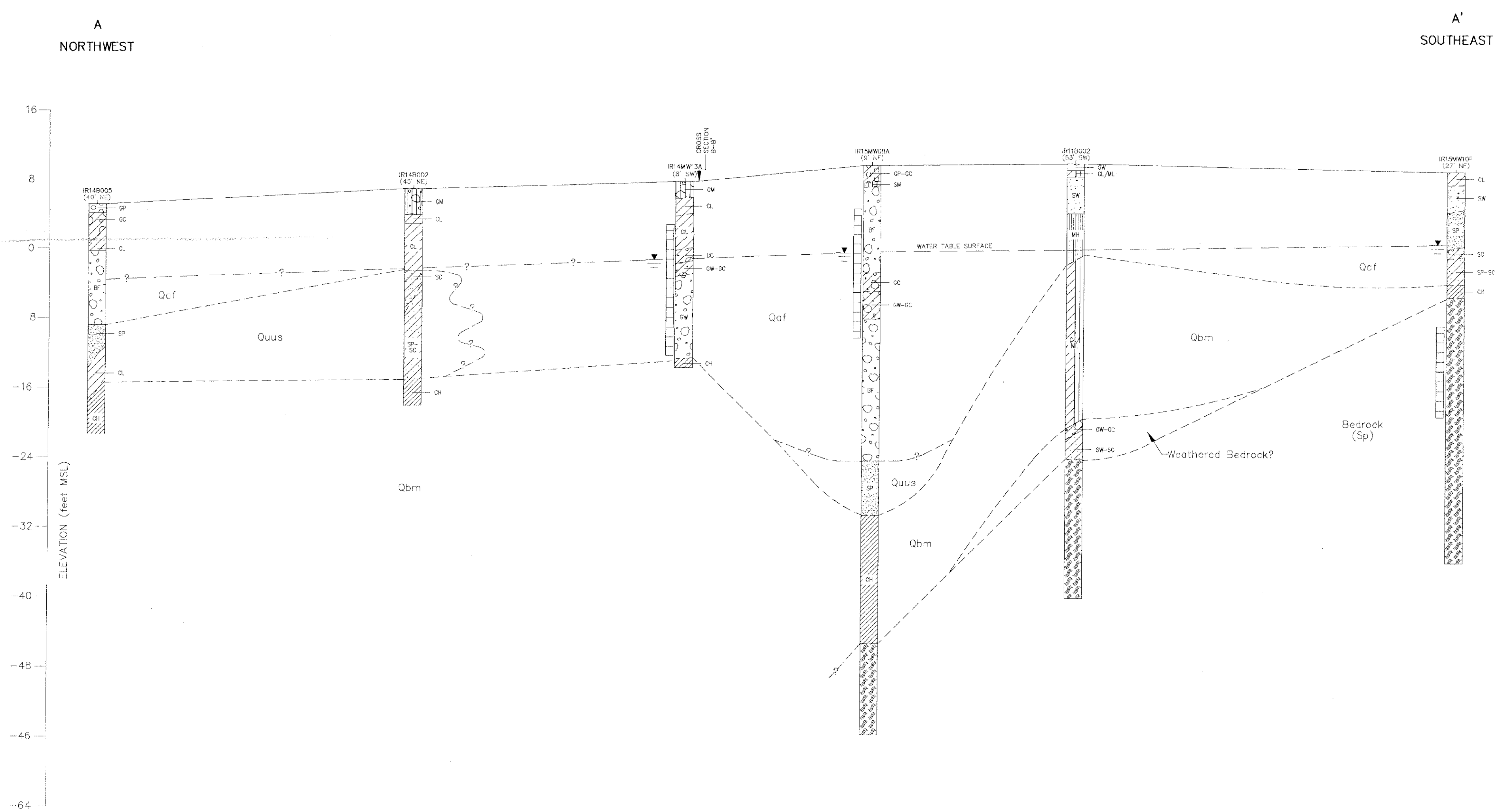
HPAN0307 40.0
19931203.0717

Harding Lawson Associates
Engineering and Environmental Services

Maximum Copper, Mercury, Lead, and Zinc Concentrations in Soil, 0- to 2.5-foot Depth Interval, Site IR-13
Group 5 Alternative Selection Report
Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

PLATE **31**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
DEK	11400 0810		12/93	



EXPLANATION:

INTERSECTION WITH OTHER CROSS SECTION; INTERPRETATIONS AT INTERSECTION POINTS ARE BASED ON BORING LOGS SHOWN ON THE CROSS SECTIONS AND THEREFORE MAY NOT MATCH INTERSECTING CROSS SECTION.

IR14B002 (45' NE) — BORING OR WELL NUMBER (DISTANCE [feet] AND DIRECTION FROM THE CROSS SECTION LINE)

ACTUAL LOCATION OF BORING; THE DIAMETER OF THE LOG ON THE CROSS SECTION IS NOT TO SCALE.

SCREEN INTERVAL

WATER LEVEL IN MONITORING WELL MEASURED ON 11/23/92

APPROXIMATE WATER TABLE SURFACE BASED ON INTERPRETATION OF WATER LEVELS IN MONITORING WELLS MEASURED ON 11/23/92; DASHED WHERE INFERRED AND QUERIED WHERE UNCERTAIN.

INTERPRETED CONTACT OF GEOLOGIC UNITS; DASHED WHERE INFERRED AND QUERIED WHERE UNCERTAIN.

Qaf — QUATERNARY ARTIFICIAL FILL
Quus — QUATERNARY UNDIFFERENTIATED UPPER SAND DEPOSITS
Qbm — QUATERNARY BAY MUD DEPOSITS
Sp — FRANCISCAN SERPENTINITE BEDROCK

NOTES:

1) THE ASTM SOIL CLASSIFICATIONS AND OTHER SYMBOLS ARE SHOWN ON PLATE 10.
THE LOCATION OF THE CROSS SECTION IS SHOWN ON PLATE 2.

2) THIS CROSS SECTION IS ONE INTERPRETATION OF THE LITHOLOGIC DATA AND IS BASED ON THE DETAILED REVIEW OF THE BORING LOGS; OTHER INTERPRETATIONS MAY BE POSSIBLE.

40 0 40 80
SCALE IN FEET
VERTICAL EXAGGERATION = 5x

NO.	DATE	REVISIONS	BY	CHK
A	5/93		CSN	

DRAWN: DEK | PROJECT NO: 11400 0810
ENGINEER: | SCALE: AS SHOWN
CHECKED: | APPROVED:
DATE: | DATE:

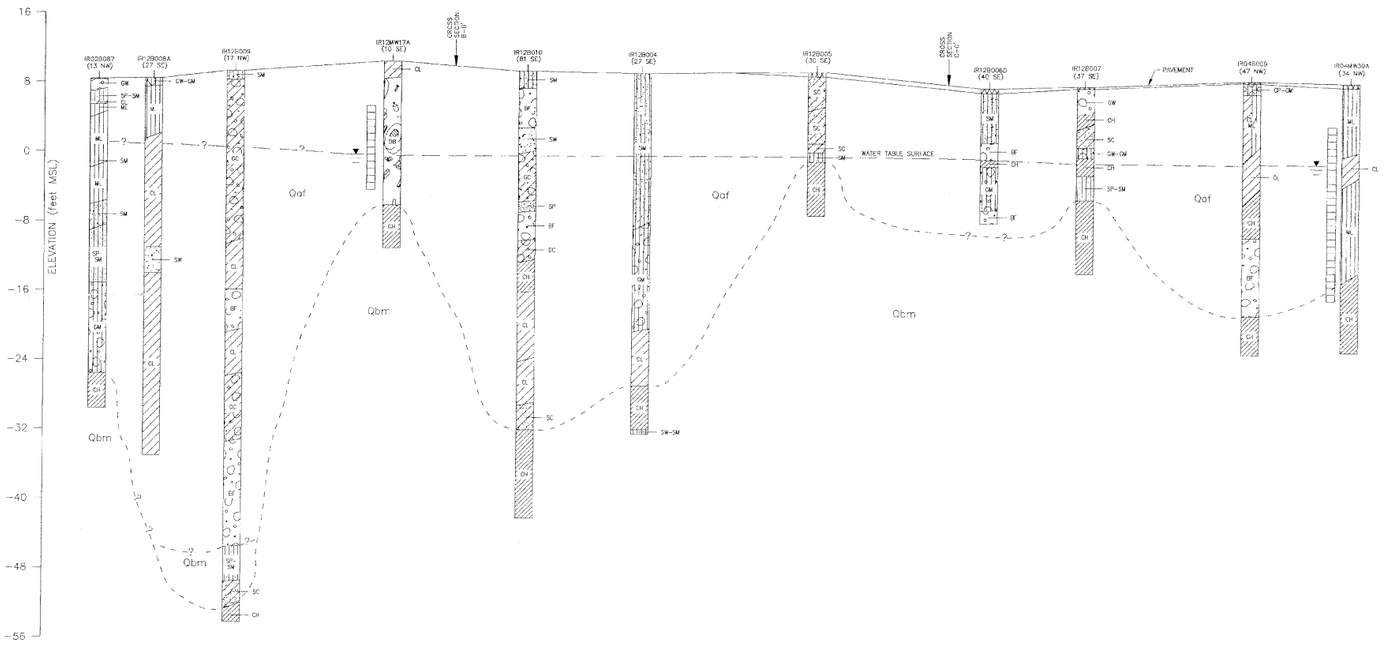
Harding Lawson Associates
Engineering and Environmental Services

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
WESTERN DIVISION
San Bruno, California

Group 5 Alternative Selection Report
Naval Station Treasure Island
Hunters Point Annex
San Francisco, California

GEOLOGIC CROSS SECTION A-A', SITES IR-11, IR-14, AND IR-15

PLATE 6
SHEET: OF
REVISION NUMBER:
DATE: 12/93



EXPLANATION:

CROSS SECTION B-B'
INTERSECTION WITH OTHER CROSS SECTION; INTERPRETATIONS AT INTERSECTION POINTS ARE BASED ON BORING LOGS SHOWN ON THE CROSS SECTION AND THEREFORE MAY NOT MATCH INTERSECTING CROSS SECTION.

IR12B005 (30 SE)
BORING OR WELL NUMBER (DISTANCE [feet] AND DIRECTION FROM THE CROSS SECTION LINE.)

ACTUAL LOCATION OF BORING; THE DIAMETER OF THE LOG ON THE CROSS SECTION IS NOT TO SCALE.

SCREEN INTERVAL

WATER LEVEL IN MONITORING WELL MEASURED ON 11/23/92

APPROXIMATE WATER TABLE SURFACE BASED ON INTERPRETATION OF WATER LEVELS IN MONITORING WELLS MEASURED ON 11/23/92; DASHED WHERE INFERRED AND QUERIED WHERE UNCERTAIN

INTERPRETED CONTACT OF GEOLOGIC UNITS; DASHED WHERE INFERRED AND QUERIED WHERE UNCERTAIN

Qaf — QUATERNARY ARTIFICIAL FILL
Quus — QUATERNARY UNDIFFERENTIATED UPPER SAND DEPOSITS
Qbm — QUATERNARY BAY MUD DEPOSITS

60 0 60 120
SCALE IN FEET
VERTICAL EXAGGERATION = 7.5X

NOTES:

(1) THE ASTM SOIL CLASSIFICATIONS AND OTHER SYMBOLS ARE SHOWN ON PLATE 10.
THE LOCATION OF THE CROSS SECTION IS SHOWN ON PLATE 3.

(2) THIS CROSS SECTION IS ONE INTERPRETATION OF THE LITHOLOGIC DATA AND IS BASED ON THE DETAILED REVIEW OF THE BORING LOGS; OTHER INTERPRETATIONS MAY BE POSSIBLE.

NO.	DATE	REVISIONS	BY	CHK
A	5/93		CSN	

DRAWN: DEK | PROJECT NO: 11400.0810
ENGINEER: | SCALE: AS SHOWN
CHECKED: | APPROVED:
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GEOLOGIC CROSS SECTION A-A', SITE IR-12

PLATE 7
SHEET: OF
REVISION NUMBER:
DATE: 12/93